

WHAT IS CLAIMED IS:

1. A method of preventing a pathoangiogenic condition in a mammal comprising:
administering to said mammal an amount of one or more GBS toxin receptors or
immunogenic fragments thereof effective to induce or maintain an immune response to at least
5 one of the GBS toxin receptors.
2. A method of attenuating a pathoangiogenic condition in a mammal comprising:
administering to said mammal an amount of one or more GBS toxin receptors or
immunogenic fragments thereof effective to induce or maintain an immune response to at least
10 one of the GBS toxin receptors.
3. The method of claim 1 or 2, wherein the pathoangiogenic condition is selected
from the group consisting of cancer, scarring during wound healing, gliosis during repair of
nerve injury, chronic wounds, keloids, reperfusion injury, rheumatoid arthritis, atherosclerosis,
15 osteoarthritis and psoriasis.
4. The method of claim 1 or 2, wherein at least one GBS toxin receptor has
substantial identity to SEQ ID NO:2.
- 20 5. The method of claim 4, wherein at least one GBS toxin receptor is identical to
SEQ ID NO:2, or is SEQ ID NO:2 with at least one conservative amino acid substitution.
6. The method of claim 1 or 2, wherein at least one immunogenic fragment has
substantial identity to a portion of SEQ ID NO:2.
- 25 7. The method of claim 6, wherein at least one immunogenic fragment has
substantial identity to Hab1, Hab2, Hab3 or Hab4.
8. The method of claim 1 or 2, wherein at least one GBS toxin receptor has
30 substantial identity to SEQ ID NO:4.
9. The method of claim 8, wherein at least one other GBS toxin receptor has
substantial identity to SEQ ID NO:2.

10. The method of claim 8, wherein at least one GBS toxin receptor is identical to SEQ ID NO:4, or is SEQ ID NO:4 with at least one conservative amino acid substitution.

5 11. The method of claim 1 or 2, wherein at least one immunogenic fragment has substantial identity to a portion of SEQ ID NO:4.

12. The method of claim 11, wherein each of two or more immunogenic fragments has substantial identity to a portion of SEQ ID NO:4.

10 13. The method of claim 11, wherein at least one immunogenic fragment has substantial identity to a portion of SEQ ID NO:2.

15 14. The method of claim 12, wherein at least one immunogenic fragment has substantial identity to p55a, p56a or p57a.

15 15. The method of claim 1 or 2, wherein the normal tissue of the mammal does not contain the GBS toxin receptor.

20 16. The method of claim 1 or 2, wherein the administering is via a method selected from the group consisting of oral ingestion, nasal inhalation, subcutaneous injection, intravenous injection, intramuscular injection, intraperitoneal injection or rectal application.

25 17. The method of claim 2, wherein the mammal does not have the pathoangiogenic condition at the time of the administering step.

18. The method of claim 2, wherein the mammal has a pathoangiogenic condition at the time of the administering step.

30 19. The method of claim 2, further comprising administering to said mammal an amount of GBS toxin sufficient to induce a response.

20. The method of claim 19, wherein the amount of GBS toxin is at least about 5 $\mu\text{g/kg}$.

21. The method of claim 20, wherein the amount of GBS toxin is at least about 15 $\mu\text{g/kg}$.

22. The method of claim 21, wherein the amount of GBS toxin is at least about 20 $\mu\text{g/kg}$.

23. The method of claim 2, further comprising administering an effective amount of one or more immunocompatible antibodies that bind to a GBS toxin receptor.

24. A method of preventing or attenuating a pathoangiogenic condition in a mammal comprising:
administering to said mammal immunocompatible antibodies that bind to a GBS toxin receptor.

25. The method of claim 23 or 24, wherein each immunocompatible antibody is a monoclonal antibody.

26. The method of claim 23 or 24, wherein each immunocompatible antibody is obtained from a polyclonal serum.

27. The method of claim 23 or 24, wherein at least some of the immunocompatible antibodies further comprise a cytotoxic agent.

28. The method of claim 2, further comprising removing T cells from the mammal, culturing the T cells with a GBS toxin receptor, and returning the T cells to the mammal.

29. A composition comprising one or more GBS toxin receptors or immunogenic fragments thereof.

30. The composition of Claim 29 wherein the one or more GBS toxin receptors or immunogenic fragments thereof are in an amount effective for protecting against or attenuating a pathoangiogenic condition.

5 31. The composition of Claim 30 further comprising a pharmaceutically acceptable excipient.

32. The composition of claim 30, wherein at least one of the GBS toxin receptors or fragments thereof is isolated.

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33. The composition of claim 30, further comprising an adjuvant.

34. The composition of claim 33, wherein said adjuvant is selected from the group consisting of: a water in oil composition, Freund's adjuvant, QS21, IL-12 and interferon gamma.

35. The composition of claim 32, wherein one of the isolated GBS toxin receptors or fragments thereof is conjugated or linked to a protein carrier.

36. The composition of claim 35, wherein the protein carrier is a molecule selected from the group consisting of keyhole limpet hemocyanin (KLH), bovine serum albumin (BSA), ovalbumin, human serum albumin, human gamma globulin, chicken immunoglobulin G, bovine gamma globulin and tetanus toxoid.

37. The composition of claim 30, wherein at least one of the GBS toxin receptors or fragments thereof is glycosylated.

38. The composition of claim 30, wherein at least one isolated GBS toxin receptor or fragment thereof is recombinant or synthetic.

30 39. The composition of claim 30, wherein the pathoangiogenic condition is selected from the group consisting of cancer, scarring during wound healing, gliosis during repair of nerve injury, chronic wounds, keloids, reperfusion injury, rheumatoid arthritis, atherosclerosis, osteoarthritis and psoriasis.

40. The composition of claim 30, wherein at least one GBS toxin receptor has substantial identity to SEQ ID NO:2.

41. The composition of claim 40, wherein at least one GBS toxin receptor is identical to SEQ ID NO:2, or is SEQ ID NO:2 with at least one conservative amino acid substitution.

42. The composition of claim 40, wherein at least one other GBS toxin receptor has substantial identity to SEQ ID NO:4.

43. The composition of claim 30, wherein at least one immunogenic fragment has substantial identity to a portion of SEQ ID NO:2.

44. The composition of claim 43, wherein at least one immunogenic fragment has substantial identity to Hab1, Hab2, Hab3 or Hab4.

45. The composition of claim 30, wherein at least one GBS toxin receptor has substantial identity to SEQ ID NO:4.

46. The composition of claim 45, wherein at least one GBS toxin receptor is identical to SEQ ID NO:4, or is SEQ ID NO:4 with at least one conservative amino acid substitution.

47. The composition of claim 30, wherein at least one immunogenic fragment has substantial identity to a portion of SEQ ID NO:4.

48. The composition of claim 47, wherein at least one immunogenic fragment has substantial identity to p55a, p56a or p57a.

49. The composition of claim 30, further comprising an effective amount of one or more immunocompatible antibodies that bind to a GBS toxin receptor.

50. A composition comprising:
antibodies that bind to a GBS toxin receptor.

51. The composition of claim 49 or 50, wherein each antibody is a monoclonal antibody.

5 52. The composition of claim 49 or 50, wherein each antibody is obtained from a polyclonal serum.

53. The composition of claim 49 or 50, wherein at least one of the antibodies further comprises a cytotoxic agent.

10 54. The composition of claim 30, further comprising T cells from the mammal that have been cultured with a GBS toxin receptor.

15 55. A method of producing a composition for treatment and/or prevention of pathoangiogenic conditions comprising:

providing at least one GBS toxin receptor or immunogenic fragment thereof; and
formulating the receptor or fragment in a pharmaceutically acceptable excipient.

20 56. The method of claim 55 further comprising providing an adjuvant.

25 57. A method of eliciting an immune response in an animal comprising:
administering to said mammal an amount of one or more GBS toxin receptors or immunogenic fragments thereof effective to induce or maintain an immune response to at least one of the GBS toxin receptors.

30 58. The method of claim 57 wherein the one or more immunogenic fragment is chosen from the group comprising residues 14-19 of SEQ. ID NO:4, residues 75-80 of SEQ. ID NO:4, residues 25-30 of SEQ. ID NO:4, Hab1, Hab2, Hab3, Hab4, p56a, p55a, and p57a.